

CLAIMS

1. A method for analyzing an organelle-localized protein, which enables one to determine whether or not a test protein localizes to an organelle, and comprises
5 the following steps:

(a) a step of introducing a fusion peptide (a), which comprises one half-peptide of an intein, one half-peptide of a fluorescent protein and an organelle-targeting signal peptide, into a eukaryotic cell;

10 (b) a step of introducing a test protein bound to a fusion peptide (b), which comprises the other half-peptide of the fluorescent protein and the other half-peptide of the intein, into the eukaryotic cell; and

(c) a step of detecting fluorescence signal emitted by the fluorescent protein.

2. The method of Claim 1, wherein,

15 in step (a), two or more types of fusion peptide (a), each comprising one half-peptide of different fluorescent proteins and different organelle-targeting signal peptides, are introduced into a eukaryotic cell;

in step (b), two or more types of fusion peptides (b), each comprising the other half-peptide of the different fluorescent proteins, and each bound to a test protein, is
20 introduced into the eukaryotic cell; and

in step (c), the fluorescent signal is detected.

3. The method of Claim 1 or 2, wherein, in step (a), the fusion peptide (a) is introduced into a eukaryotic cell by transfecting a recombinant vector (A), which
25 expresses the fusion peptide (a), into the eukaryotic cell.

4. The analysis method of Claim 1 or 2, wherein, in step (b), the test protein and the fusion peptide (b) are introduced into a eukaryotic cell by transfecting a

recombinant vector (B), which expresses the fusion peptide (b) and the test protein as a unit, into the eukaryotic cell.

5. A fusion peptide (a), which comprises a half-peptide of an intein, a
5 half-peptide of a fluorescent protein and an organelle targeting signal peptide.

6. A fusion peptide (b), which comprises a half-peptide of a fluorescent
protein and a half-peptide of an intein.

10 7. A recombinant vector (A), which expresses a fusion peptide (a)
comprising a half-peptide of an intein, a half-peptide of a fluorescent protein and an
organelle targeting signal peptide.

8. A recombinant vector (B), which expresses a fusion peptide (b)
15 comprising a half-peptide of a fluorescent protein and a half-peptide of an intein, and an
arbitrary test protein bound thereto.

9. A probe set for analyzing organelle-localized protein, comprising the
fusion peptide (a) of Claim 5 or the recombinant vector (A) of Claim 7, and the fusion
20 peptide (b) of Claim 6 or the recombinant vector (B) of Claim 8.

10. The probe set according to Claim 9, wherein
the fusion peptide (a) or the fusion peptide (a) expressed by the recombinant vector (A)
comprises two or more types of fusion peptides, each fusion peptide comprising one
25 half-peptide of a fluorescent protein having different signal characteristics and a different
organelle targeting signal peptide; and
the fusion peptide (b) comprises two or more types of fusion peptides, each fusion peptide
comprising the other half of the fluorescent protein.

11. A eukaryotic cell, containing a fusion peptide (a), which comprises a half-peptide of an intein, a half-peptide of a fluorescent protein and an organelle targeting signal peptide.

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12. A cell kit, comprising two or more of the eukaryotic cells of Claim 11.

13. A eukaryotic cell, comprising two or more types of fusion peptide (a), wherein each fusion peptide comprises one half-peptide of a fluorescent protein and an organelle targeting signal peptide, the fluorescent protein of each fusion peptide have different signal characteristics and the organelle targeting signal peptide of each fusion peptide target different organelle.

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14. A cell kit, comprising two or more of the eukaryotic cells of Claim 13.

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